

Honorable John C. Coughenour  
Trial Date: June 22, 2009

UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF WASHINGTON

FARMERS INSURANCE COMPANY OF  
WASHINGTON, as subrogee for Trevor and  
Andrea Nipges, and Trevor and Andrea Nipges,  
a marital community,

Plaintiffs,

vs.

POLARIS INDUSTRIES, INC., a Minnesota  
corporation,

Defendants.

No. 2:07-cv-02049-RSM

DECLARATION OF GERARD  
SCHAEFER, PE, CFEI, CFII  
IN SUPPORT OF PLAINTIFFS'  
RESPONSE TO DEFENDANTS'  
MOTION FOR SUMMARY JUDGMENT

Noted on Motion Calendar:  
Friday, April 24, 2009

The undersigned states under the penalty of perjury under the laws of the State of  
Washington:

1. Background: I am a Professional Engineer licensed by the State of Washington. I  
am also a NAFI Certified Fire & Explosion Investigator and Instructor (CFEI & CFII). My  
curriculum vitae which includes my training and education is attached as Attachment 1 to my  
FRCP 26(a)(2) report dated December 12, 2008 which is also attached.

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1 During my eighteen year career, I have investigated approximately 1,000 fires.

2 All opinions are expressed on a more probable than not basis.

3 2. Trevor Nipges Drawing: Attached to this declaration is a true and correct copy of the  
4 scene diagram drawn by Mr. Trevor Nipges when I examined the Scene on May 16, 2006.

5 3. Standards for Investigating Fires: The National Fire Protection Association publishes  
6 standards for investigation of fire origin and cause. I follow these standards, particularly NFPA  
7 921, as well as the "Scientific Method" (generally and as referenced in NFPA 921) while  
8 conducting all of my investigation.  
9

10 NFPA 1033 (2003 ed.) provides the standards required for those who conduct fire  
11 scene examination. It provides that in order to meet those standards, the investigator needs to  
12 keep up on all current literature and training regarding fire scene examination. If someone is  
13 not familiar with the NFPA standards, particularly NFPA 921, or as in this case not even aware  
14 that such standards exist, that person does not even meet the most basic qualifications  
15 outlined in NFPA 1033. If the person offers opinions regarding a fire's origin and cause without  
16 using the methods in NFPA 921, they are not conducting a thorough fire scene investigation,  
17 they are just giving their own unsubstantiated theories on a fire's origin and cause.  
18

19 During my investigation of this fire, I adhered to the NFPA 921 (2004 ed.) and used the  
20 procedures in that document, the scientific method, and my training and experience, in  
21 determining the origin and cause of the fire.

22 4. Initial Identification of ATV as Possible Cause of Fire & Role of Recall: When I first  
23 visited the scene, I knew that there had been a recall of some Polaris 2004 TrailBoss ATVs.  
24 However, I didn't know if this ATV had been recalled. I conduct all of my examinations without  
25

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1 presumption regarding the case and did so in this case. The recall had no impact regarding  
2 my determination regarding the origin or cause of the fire.

3 Prior to arriving on the scene, I talked with Mr. and Ms. Nipges by phone and then  
4 examined the scene on May 16, 2006. I spent the better part of the day at the scene and  
5 reviewed the physical evidence and again interviewed the Nipges. At the end of that  
6 examination, I had formed an initial belief that the ATV was a possible cause of the fire.

7 Forming such conclusions is necessary so that any interested parties may be notified of  
8 the loss and have an opportunity to review the scene prior to its destruction. This is standard  
9 practice in the industry.  
10

11 In my report of May 18, 2007, I noted that I could not confirm if the subject ATV was  
12 included in the recall.

13 I later performed additional research as referenced in my report and came to the  
14 conclusions in the report.

15 5. "Direct Communication" of Gasoline Can with Fire (§6 - 9): In several places in my  
16 report I use the term "direct communication" of the gasoline can with the fire and discuss the  
17 fact there was no explosion or "flash fire." To clear up any confusion, the gasoline can burned  
18 in the driveway, remote from the structure fire and the subject ATV.  
19

20 With regard to the exhaust system of the ATV lighting the gasoline can, no portion of the  
21 exhaust system could have contacted the gasoline can. The exhaust for the ATV does not  
22 come out the right side of the ATV (where Nipges stated the gasoline can was located); rather,  
23 it comes out the bottom of the muffler underneath the ATV near the right rear corner. The  
24 gasoline can could not have been located under the ATV or even immediately adjacent the  
25

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1 exhaust to it because it wouldn't reasonably fit. Additionally, the gasoline tank burned in the  
2 upright position, so it wasn't knocked over. A picture of the gasoline can as found at the scene  
3 is attached and the bottom of it is undamaged which indicates it was protected by the driveway  
4 and burning upright.

5 In order for the ATV to provide an ignition source to ignite a plastic gasoline can, the  
6 gasoline can would have to have touched the ATV or been very close to it. The gasoline can  
7 cannot reasonably come in direct contact with any potential ignition sources on the ATV,  
8 principally the exhaust system, because they such sources are protected from objects the size  
9 and shape of the gasoline can by the configuration of the ATV. The gasoline can was at least  
10 2' away from the ATV in the closest drawn position which is much too far for direct ignition of  
11 the gasoline can by any portion or system of the ATV. Thus, the gasoline can was not a risk of  
12 ignition from a normally operating ATV where located.

13  
14 The fact that there was no explosion or "flash fire" is obvious from Mr. Nipges lack of  
15 description of the same, lack of damage to his hair, evidence of any explosion or flash fire, and  
16 condition of the gasoline can after the incident.

17  
18 6. Burn on Outside of Leg Only & Manner of Pants Burned (§4, 5, 6 & 7): This  
19 evidence is significant for several reasons. First, when Nipges is seated on the ATV, the  
20 inside of his leg is protected by the ATV and his pants are pushed next to his leg because of  
21 the ATV's cowling, leaving a gap in his cuff on the outside of leg.

22 Second, the fire only caused damage to the skin on his leg. This is significant because  
23 it shows the fire started below his leg and grew very fast moving into his pant cuff before he  
24 was aware there was a fire. The speed in which this fire grew is consistent with a gasoline  
25

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1 leak from the ATV and there were no other fuels available which could have made a rapidly  
2 growing fire which could enter his pant cuff from below the ATV. Therefore, more likely than  
3 not, the first ignited fuel was gasoline. If gasoline had been spilled or leaked a distance from  
4 an ignition source, such as from the gasoline can, a flash fire or explosion would have  
5 occurred.

6 Finally, his pants were not damaged. This shows that heat was not coming from the  
7 exterior of his pants through the fabric to his leg because the material of his pants would have  
8 transmitted heat leading to discovery of the fire prior to his leg being burned.  
9

10 It also shows that no combustible liquid was spilled on his pants which ignited and  
11 caused the fire. This is because if combustible liquid (i.e., gasoline) had been spilled on his  
12 pants, the area where the gasoline had spilled would have been protected by the liquid  
13 gasoline, however, there would have been burning of the pant leg near the edge of where the  
14 gasoline was spilled as this part of the fabric would not have been cooled by the gasoline and  
15 damage to his pant leg would have occurred.

16 7. ATV as Ignition Source (§5): As stated, ATV engines, and similar engines, are  
17 recognized as competent ignition sources for gasoline. It's true that the majority of the time, a  
18 gasoline leak will not be ignited by a vehicle's engine; however, it's not impossible. NFPA 921,  
19 chapter 25, is entitled "Motor Vehicle Fires." §25.4 states:  
20

21 **Ignition Sources.** In most cases, the sources of ignition energy in  
22 motor vehicle fires are similar to those associated with structural  
23 fires.... There are however. Some unique sources that should be  
24 considered, such as the hot surfaces of the engine exhaust  
25 system.... Other hot surfaces ignition sources may include brakes,  
26 bearings, and turbochargers. Because some of these ignition

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1 sources may be difficult to identify following a fire, the description in  
2 25.4.1 through 25.4.5 are provided to assist in their recognition.

3 §25.4.3.2. Typically, gasoline will not be ignited by a hot surface,  
4 but requires an arc, spark, or open flame for ignition. While ignition  
5 of gasoline vapors by a hot surface is difficult to reproduce, such  
6 ignitions should not be dismissed out of hand. As reported by La  
7 Pointe, et. al., ignition of liquids by hot surface in the open air was  
8 not observed until the surface temperature was several hundred  
9 degrees above the published ignition temperature. The ignition of  
10 liquids by hot surfaces is influenced and determined by many  
11 factors, not just ignition temperature. These factors include  
12 ventilation, environmental conditions, such as humidity, air  
13 temperature and airflow; and fluids' physical properties such as  
14 auto ignition point, liquid flash point, liquid boiling point, liquid vapor  
15 pressure, liquid vaporization rate, and misting of liquid. Other  
16 factors include hot surface roughness, material type, and residence  
17 time of the liquid on the hot surface."

18 Gasoline can ignite on hot surfaces such as some exterior portions of internal  
19 combustion engines, and I have seen, and conducted tests in the course of my work on other  
20 cases which prove that gasoline can ignite on hot surfaces as acknowledged in NFPA 921.  
21 Gasoline's auto-ignition temperature is 246-280°C and typical exhaust temperatures of a four  
22 stroke engine, like the one in the subject ATV is approximately 425°C. Thus, the ATV's engine  
23 can, and likely did in this case, serve as a competent ignition source of the leaking gasoline.

24 8. Gasoline Leak in Exemplar: In Scott Roberts' report, he mentions that he examined  
25 an exemplar ATV similar to the subject ATV. I examined the exemplar ATV on January 19,  
26 2009. I had the exemplar tilted up so I could examine its undercarriage. Upon examining the  
fuel pump, I noticed that it was "zip tied" to the undercarriage, not mounted. In his deposition  
of March 23, 2009, Mr. Macon claimed this was a gravity fed fuel system, but it is not, it has a  
fuel pump.

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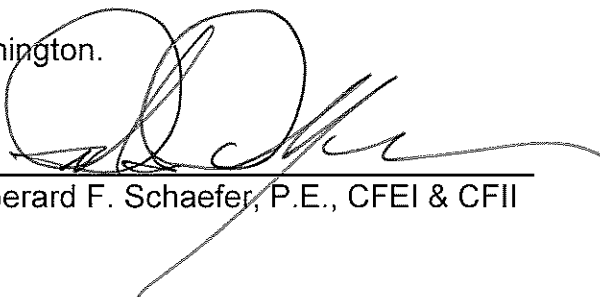
1 When I examined the fuel pump, I noticed a gasoline leak on the inlet side of the fuel  
2 pump near the left front corner of the engine. This leak is readily available to be seen upon  
3 inspection. Pictures I took of this leak are attached. The wetness on the left line is visible  
4 evidence of a gasoline leak.

5 The fuel pump is located at the left front corner of the ATV (when in riding position) and  
6 that is within the area of origin for this fire.

7 Due to the amount of destruction in the subject ATV, I cannot offer an opinion as to  
8 whether it had the same defect; however, any leaking fuel, such as that from the exemplar's  
9 fuel pump, could have served as a fuel source for this fire. The fuel leak is the defect which  
10 creates the hazard. That leaked fuel can be ignited by multiple sources within and on an  
11 operating internal combustion engine is normal to their operation. Experience with similar  
12 machines indicates that sufficient temperatures and conditions to ignite leaked gasoline can be  
13 achieved in the time the subject ATV had been running on the day of the fire.

14 Signed under penalty of perjury under the laws of the State of Washington  
15 this 16<sup>TH</sup> day of April, 2009, at Seattle, Washington.

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Gerard F. Schaefer, P.E., CFEI & CFII

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